

Public Land and Resources Law Review

Volume 13

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Recommended Citation

13 Pub. Land L. Rev. 25 (1992)

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THE MEANING OF "SPECIES" UNDER THE ENDANGERED SPECIES ACT

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INTRODUCTION

Twenty years after enactment, the Endangered Species Act of 1973¹ (ESA or the Act) continues to generate intense discussion and debate. With reauthorization of the ESA scheduled for 1993, more litigation, and increased media attention on issues such as the northern spotted owl and Columbia River salmon, the controversy surrounding this Act is expected to increase. Characterized as the "pit bull of federal environmental statutes,"² the ESA is recognized as an extremely powerful environmental law. The Supreme Court described the ESA as "the most comprehensive legislation for the preservation of endangered species ever enacted by any nation."³

One issue that has received little attention until recently is the meaning of "species." This article concentrates on the definition of this term and, more specifically, on the meaning of "distinct population" in the context of the ESA listing process. Related issues, such as what constitutes a "population segment" and whether a species may be listed in a significant portion of its range, are not the primary focus of this paper. Part I reviews the statutory definitions, relevant legislative history, and case law; Part II

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The views expressed in this article are solely those of the authors and do not purport to represent the National Oceanic and Atmospheric Administration, the National Marine Fisheries Service, or any other agency or person.

1. Pub. L. 93-205, 87 Stat. 884-903 (1973) (currently codified at 16 U.S.C. §§ 1531-1544 (1988)).

2. Address by Donald Barry, Majority Counsel, House of Representatives Comm. on Merchant Marine and Fisheries, Am Bar Assoc. Section on Nat. Resources, Energy and Env'tl. Law, Workshop on Endangered Species (Apr. 6, 1990) (quoted by Robert D. Thornton, *Searching for Consensus and Predictability: Habitat Conservation Planning under the Endangered Species Act of 1973*, 21 ENVTL. L. 605 (1991)).

3. *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 180 (1978) (hereinafter cited as *TVA v. Hill*).

summarizes recent actions taken by the National Marine Fisheries Service (NMFS)⁴ concerning the concept of distinct population as it is applied in the case of Pacific salmon.⁵

PART I

A. *Statutory Definitions*

The ESA protects a group of fish, wildlife, or plants only if that group is listed officially as an endangered or threatened species. The Act defines "endangered species"

(6) The term "endangered species" means any species which is in danger of extinction throughout all or a significant portion of its range other than a species of the Class Insecta determined by the Secretary to constitute a pest whose protection under the provisions of this chapter would present an overriding risk to mankind.⁶

"Threatened species" also is defined:

(20) The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.⁷

A group of organisms can be listed under the ESA only if the group constitutes a species. Although the ESA uses the term "species," it does not use "species" in the common biological sense. In the field of biology, "species" refers to a taxonomic category consisting of "groups of interbreeding natural populations that are reproductively isolated from other such groups."⁸ In contrast, the ESA currently defines "species" as follows:

4. NMFS is an agency within the National Oceanic and Atmospheric Administration, which is a part of the Department of Commerce. The Secretaries of Interior and Commerce share responsibility for administering the ESA. See the definition of "Secretary" under 16 U.S.C. § 1532(15). The Secretary of Commerce has responsibility for "any species over which program responsibilities have been vested in the Secretary of Commerce pursuant to Reorganization Plan Numbered 4 of 1970." 16 U.S.C. § 1533(a)(2); see Reorganization Plan No. 4 of 1970, 84 Stat. 2090 (1970), *reprinted in* 5 U.S.C.A. Appendix 1 (1991 Pocket Part); see also Memorandum of Understanding Regarding Jurisdictional Responsibilities and Listing Procedures under the Endangered Species Act of 1973 (August 28, 1974). The Secretary of Commerce has delegated most ESA responsibilities to the Assistant Administrator for Fisheries. See NOAA Circular 78-21 (April 4, 1978).

5. NMFS recently responded to petitions to list five stocks of salmon in the Columbia River system under the ESA. See n. 60-65 and related discussion.

6. 16 U.S.C. § 1532(6) (although renumbered, this definition is unchanged from the original language in Pub. L. 93-205 (1973)).

7. 16 U.S.C. § 1532(20) (this definition also is unchanged from the original language in Pub. L. 93-205 (1973)).

8. ERNST MAYR, *POPULATIONS, SPECIES, AND EVOLUTION* (Harvard University Press, 1970) at 12.

(16) The term "species" includes any subspecies of fish or wildlife or plants, and *any distinct population segment of any species of vertebrate fish or wildlife which interbreeds when mature.*⁹

The statute does not define "subspecies" or "distinct population." In the biological context, "subspecies" refers to a taxonomic subdivision of a species consisting of "an aggregate of phenotypically similar populations of a species inhabiting a geographical subdivision of the range of the species and differing taxonomically from other populations of the species."¹⁰ To be classified as a subspecies, the group of populations must differ taxonomically, that is by diagnostic morphological characteristics. The division of species into smaller biological units or populations is less clear. Although various definitions of the biological term "population" exist, a population can generally be considered "the community of potentially interbreeding individuals at a given locality"¹¹ There is some discussion of the meaning of these terms in the scientific literature.¹²

B. Legislative History

1. Precursor Acts

The Endangered Species Preservation Act of 1966 provided protection only for certain species of native fish and wildlife threatened with extinction.¹³ While the Act did not define the term "species," there was no indication that a subspecies or population could be protected.

Protection of subspecies began with the enactment of the Endangered Species Conservation Act of 1969. That Act was designed to protect species and subspecies of fish and wildlife that were threatened with

9. 16 U.S.C. § 1532(16) (emphasis added). This definition was amended by Pub. L. 95-632, 92 Stat. 3751 (1978).

10. ERNST MAYR, POPULATIONS, SPECIES, AND EVOLUTION (Harvard University Press, 1970) at 210.

11. *Id.* 82. Another definition considers a population to consist of "a single breeding unit characterized by relatively high gene flow within the unit and relatively low gene flow with adjacent units." W.P. Perrin, M.D. Scott, G.J. Walker and V.L. Cass, *Review of Geographical Stocks of Tropical Dolphins (Stenella spp. and Delphinus delphis) in the Eastern Pacific*, (SWFC Admin. Rep. LJ-84-02) at 57. Central to the concepts of "species" and "population" is that there is generally no gene flow between species, while there is restricted gene flow between populations, at least in the short term, and virtually unrestricted gene flow within a population. Restricted gene flow, however, may occur at several levels, making it difficult to identify what is a population and what is not.

12. See Robin Waples, *Pacific Salmon and the Definition of "Species" under the Endangered Species Act*, 53(3) MARINE FISHERIES REVIEW 11 (1991); Andrew Dizon et al., *Rethinking the Stock Concept: A Phylogeographic Approach*, 6(1) CONSERVATION BIOLOGY 24 (March 1992). See also John Rennie, *Are Species Specious?*, SCIENTIFIC AMERICAN at 26 (November 1991).

13. See Pub. L. 89-669, § 1(a), 80 Stat. 926 (1966).

worldwide extinction.¹⁴

2. *The 1973 Act*

In response to limitations and inadequacies of these earlier Acts, Congress enacted the Endangered Species Act of 1973.¹⁵ The legislative history indicates a concern over the limitations of the earlier acts and a need to broaden the concept of species eligible for protection.¹⁶ First, the 1973 Act included protections for threatened species, as well as for those species facing more immediate risks of extinction. Next, the Act protected not only species in danger of extinction worldwide, but also species in danger of extinction in a significant portion of their range.¹⁷ Finally, the 1973 Act defined "species" to include various biological subcategories:

(11) The term "species" includes any subspecies of fish or wildlife or plants and any other group of fish or wildlife of the same species or smaller taxa in common spatial arrangement that interbreed when mature.¹⁸

The legislative history of the 1973 Act indicates a clear intention to protect populations of wildlife, as well as entire biological species.¹⁹

14. See Pub. L. 91-205 § 3(a), 83 Stat. 275 (1969) (the terms "species" and "subspecies" were not defined by this Act).

15. Pub. L. 93-205, 87 Stat. 884 (1973).

16. See Cong. Research Service, 93d Cong., 1st Sess., CONGRESS AND THE NATION'S ENVIRONMENT (1975), reprinted in Cong. Research Service, 97th Cong., 2d Sess., A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973 (Comm. Print 1982) at 2.

17. See the definitions of "endangered species" and "threatened species" at 16 U.S.C. § 1532(6), (20). The House Report accompanying the 1973 Act discussed the new definition: The term "Endangered Species" means any species of fish or wildlife which is in danger of extinction throughout its entire range, or any portion of its range. This definition is a significant shift in the definition in the existing law, which considers a species to be endangered only when it is threatened with worldwide extinction. It includes the possibility of declaring a species endangered within the United States where its principal range is in another country such as Canada or Mexico, and members of that species are only found in this country insofar as they exist on the periphery of their range.

H.R. Rep. No. 412, 93d Cong., 1st Sess. (1973), reprinted in Cong. Research Service, 97th Cong., 2d Sess., A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973 (Comm. Print 1982) at 149.

This article does not attempt to discuss the appropriateness of listing a species only in a portion of its range.

18. Pub. L. 93-205 § 3(11), 87 Stat. 884 (1973) (this definition revised by Pub. L. 95-632 § 2, 92 Stat. 3751 (1978)). The definition in the 1973 Act is similar to the definition utilized by Marine Mammal Protection Act of 1972, 16 U.S.C. §§ 1361-1407.

(10) The term "population stock" or "stock" means a group of marine mammals of the same species or smaller taxa in a common spatial arrangement, that interbreed when mature.

16 U.S.C. § 1362(10).

19. H.R. Rep. No. 412, 93d Cong., 1st Sess. (1973), reprinted in Cong. Research Service, 97th Cong., 2d Sess., A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973 (Comm. Print 1982) at 150. Other legislative history also clearly indicates populations could be listed under the 1973

While the 1973 Act does not provide detailed information concerning the species issue, this question should be evaluated in the general context of the Act's overall goals. The stated purposes of the Act have not changed since 1973:

(b) *Purposes.*—The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of treaties and conventions set forth in subsection (a) of this section.²⁰

The Act further declares that it is the policy of Congress that "all Federal departments and agencies shall seek to conserve endangered species and threatened species."²¹ The definition of "conserve" is very broad.²²

The Supreme Court has stated that the "language, history, and structure of the [ESA] indicates beyond doubt that Congress intended endangered species to be afforded the highest of priorities."²³ Furthermore, the Court has recognized and emphasized legislative history stressing the value and importance of our genetic heritage:

The value of this genetic heritage is, quite literally, incalculable.

From the most narrow point of view it is in the best interests of mankind to minimize the losses of genetic variations. The

Act:

The act covers every animal and plant species, subspecies, and population in the world needing protection. There are approximately 1.4 million full species of animals and 600,000 full species of plants in the world. Various authorities calculate as many as 10% of them—some 200,000—may need to be listed as Endangered or Threatened. When one counts in subspecies, not to mention individual populations, the total could increase to three to five times that number.

TVA v. Hill, 437 U.S. at 160 n. 8 (quoting Keith Shreiner (quoted in letter to the Chm. of the House Committee on Merchant Marine and Fisheries (Apr. 25, 1977))).

20. 16 U.S.C. § 1531(b).

21. 16 U.S.C. § 1531(c).

22. "The terms 'conserve,' 'conserving,' and 'conservation' mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Chapter are no longer necessary. Such measures and procedures include, but are not limited to, all activities associated with scientific resource management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking." 16 U.S.C. § 1532(3).

23. TVA v. Hill, 437 U.S. at 174.

reason is simple: They are keys to puzzles which we cannot solve, and may provide answers to questions which we have not yet learned to ask.²⁴

3. *The 1978 Amendments*

The Endangered Species Act Amendments of 1978²⁵ replaced the original definition of "species" with the current language. The plain language of the revised definition indicates that a distinct population segment of vertebrate fish or wildlife, but not distinct population segments of plants and invertebrates, would be considered a species for the purposes of the ESA. The revision was curiously summarized in the Conference Report:

S. 2899 redefines the term "species" as it is used in the act. The existing definition of "species" in the act includes subspecies of animals and plants, taxonomic categories below subspecies in the case of animals, as well as distinct populations of vertebrate (sic) "species." The definition included within the conference report would exclude taxonomic categories below subspecies from the definition as well as distinct populations of invertebrates.²⁶

The House Bill had proposed a similar definition, but the conferees accepted the Senate language.²⁷ The legislative history of the 1978

24. *TVA v. Hill*, 437 U.S. at 178, (citing H.R. Rep. No. 412, 93d Cong., 1st Sess. at 4-5 (1973)) (emphasis added by the Court).

25. Pub. L. 95-632, 92 Stat. 3751 (1978).

26. H.R. Rep. No. 1804, 95th Cong., 2nd Sess. (1978), *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 1208.

This summary is confusing. First, it is unclear if a population is considered a taxonomic category since a population does not have a clear place in the normal taxonomic hierarchy or an associated Latin trinomial. Thus, to suggest that the original definition included taxonomic categories below subspecies level or that the revised definition excludes taxonomic categories below the subspecies level is confusing. Second, the description of the "existing definition" (presumably a reference to the original definition in the 1973 Act) indicates that a distinct population of invertebrates could not be treated as a "species." To the extent that at least some invertebrate animals are considered "wildlife," this statement is in error. Third, to suggest that the revised definition excludes all biological categories below subspecies from the definition of "species" is also incorrect. Rather, the revised definition would appear to exclude biological categories below the subspecies level only for plants and invertebrate fish and wildlife.

27. H.R. 14104 proposed the following definition:

The term "species" includes any subspecies of fish or wildlife or plants, and any distinct segment of the population of any species of vertebrate fish or wildlife which interbreeds when mature.

H.R. 14104, 95th Cong., 2d Sess. at 22 (1978), *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 685; *see also* H.R. Rep. No. 1625, 95th Cong., 2d Sess. at 24 (1978), *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 716. The House Report provides the following explanation concerning this

Amendments does not further explain the revised definition. Other proposals to further restrict the definition and exclude most subspecies and populations were discussed in floor debate and rejected.²⁸

4. *The 1979 Amendments*

The Endangered Species Act Amendments of 1979²⁹ did not change the definition of "species." Nonetheless, the legislative history of these amendments is particularly informative since the listing of distinct population segments was a topic of discussion and debate. In testimony before a Senate committee, General Accounting Office (GAO) officials criticized the listing of specific populations under the ESA.³⁰ The Senate

definition:

The existing definition of "species" in the act includes subspecies of animals and plants, as well as distinct populations of animal "species." The definition in the committee bill would exclude taxonomic categories below subspecies from the definition as well as distinct populations of invertebrates.

H.R. Rep. No. 1625, 95th Cong., 2d Sess. (1978), *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 749.

28. For example, see the definition of "species" in the amendment offered by Rep. Duncan and related debate. Cong. Rec. (Oct. 14, 1978) *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 881-884. *See also* the definition in the amendment offered by Sen. Garn and related debate. Cong. Rec. (July 19, 1978) *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 1080-1107.

Also of interest is the proposal to amend the definitions of "endangered species" and "threatened species." Senator Bartlett proposed to redefine these terms so that the danger of extinction must occur throughout "all or the essential portion" of the species' range, rather than "all or a significant portion" of the species' range. Amendment 1426 was agreed to by the Senate. *See* Cong. Rec. (July 19, 1978) *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 1126-1130; *see also* S. 2899, as passed by the Senate, *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 1190-1191. This change was not included in the Conference Report, but research has not revealed any explanation concerning this decision. *See* H.R. Rep. 95-1804, 95th Cong., 2d Sess., *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982), discussion of definitions at 1208-1209.

29. Pub. L. 96-159, 93 Stat. 1225 (1979).

30. General Accounting Office, *ENDANGERED SPECIES—A CONTROVERSIAL ISSUE NEEDING RESOLUTION*, Report to Congress 1, 52 (1979). It should be noted that this comment concerned the 1973 definition although subsequent statements indicated the same concern was relevant to the revised definition.

The definition of species in the 1973 act included any subspecies of fish, wildlife, or plants and any other group of fish or wildlife of the same species or smaller taxa (group) in common spatial (space) arrangement that interbreed when mature. This definition permitted FWS to list populations of species, regardless of their size, location, or total numbers. Thus, squirrels in a specific city park could be listed as endangered, even though an abundance of squirrels lived in the same city and elsewhere.

However, the new definition of species will not affect the listing of geographically limited

Report summarized these concerns:

In testimony before the Resource Protection Subcommittee on April 3, officials from the General Accounting Office recommended that the subcommittee consider an amendment to the definition of species currently contained in the act which would prevent the FWS from listing geographically limited populations of vertebrates as threatened or endangered. It is the GAO's contention, based on a draft report which it has conducted on the administration of the act, that FWS has interpreted the term "species" to include any population of the animal, regardless of its size, location or total numbers. According to the GAO, this could result in the listing of squirrels in a specific city park, even though there is an abundance of squirrels in other parks in the same city, or elsewhere in the country³¹

This report also indicated that the service agencies opposed revising the definition:

The FWS and NMFS, on the other hand, oppose such a change on the basis that it would severely limit their ability to require the appropriate level of protection for a species based on its actual biological status. For instance, under the GAO proposal FWS would be required to provide the same amount of protection for the bald eagle population in Alaska, which is healthy, as for the bald eagle population in the conterminous states, which is endangered. One of the weaknesses of the 1969 Act which was corrected in the 1973 amendments was the inability of the FWS to adopt different management practices for healthy, threatened or endangered populations.³²

Congress declined to make any further revisions in the statutory definition, but at least the Senate Report indicated that "some clarification would be useful."³³ The reaction of the Senate Committee on Environment and Public Works was described as follows:

The committee agrees that there may be instances in which

populations of vertebrate, such as the Pine Barrens tree frog or desert tortoise. Therefore, either the term species should be redefined to exclude all distinct population listings, or population listings should be limited to significant portions of species' ranges.

Id. at 55. See S. Rep. 151, 96th Cong., 1st Sess. (1979), reprinted in Cong. Research Service, 97th Cong., 2d Sess., A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973 (Comm. Print 1982) at 1396-1397.

31. S. Rep. 151, 96th Cong., 1st Sess. (1979), reprinted in Cong. Research Service, 97th Cong., 2d Sess., A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973 (Comm. Print 1982) at 1396-1397.

32. *Id.* at 1397.

33. *Id.* at 1396.

FWS should provide for different levels of protection for populations of the same species. For instance, the U.S. population of an animal should not necessarily be permitted to become extinct simply because the animal is more abundant elsewhere in the world. Similarly, listing of populations may be necessary when the preponderance of evidence indicates that a species faces a widespread threat, but conclusive data is available with regard to only certain populations. Nonetheless, *the committee is aware of the great potential for abuse of this authority and expects the FWS to use the ability to list populations sparingly and only when the biological evidence indicates that such action is warranted.*³⁴

5. The 1982 Amendments

The Endangered Species Act Amendments of 1982³⁵ revised the process for petitioning and listing a species but did not change the definition of "species" from the 1978 version. Nonetheless, the 1982 Amendments are relevant in three respects. First, a special provision was created for "experimental populations."³⁶ In general, a lesser level of protection would be provided for a population designated as experimental.³⁷

34. *Id.* at 1397 (emphasis added). It is interesting to contrast this underscored language that indicates that the listing decision may involve at least some discretion with subsequent indications that this type of decision is nondiscretionary. See H.R. Rep. No. 835, 97th Cong., 2d. Sess., at 20 (1982) (the Secretary has "mandatory, nondiscretionary duties" in the listing process). See also *Pacific Legal Foundation v. Andrus*, 657 F.2d 829 (6th Cir. 1981) (the Secretary does not have discretion to consider factors specified under NEPA in the listing process).

35. Pub. L. 97-304, 96 Stat. 1420 (1982).

36. See 16 U.S.C. § 1539(j), as created by Pub. L. 97-304.

37. To begin with, an experimental population is treated as a threatened species regardless of whether the nonexperimental population is listed as endangered. Furthermore, the protections that are applicable depend upon whether or not the experimental population is considered essential to the continued existence of the endangered or threatened species. Finally, the level of protection depends on the type of special regulations that are adopted.

Before authorizing the release of an experimental population, the population is to be identified as essential or nonessential. This finding is very important. Nonessential experimental populations occurring outside national parks and national wildlife refuges receive little or no substantive protection; these non-essential experimental populations are treated as proposed species for the purposes of interagency cooperation. Critical habitat is not designated for a non-essential experimental population. On the other hand, experimental populations that are determined to be essential to the continued existence of a listed species and nonessential populations in national parks and wildlife refuges receive full protection under 16 U.S.C. § 1536.

The experimental population must be identified by regulation; and these regulations can be expected to specify the protections provided and to address the particular needs of each experimental population:

The purpose of requiring the Secretary to proceed by regulation, apart from ensuring that he will receive the benefit of public comment on such determinations, is to provide a vehicle for the development of special regulations for each experimental population that will

While it is not clear that "population," as the term is used in the context of experimental populations, would determine how the term must be interpreted for listing purposes, it is interesting to note the emphasis on geographic isolation. A population would be considered experimental only when it is wholly separate geographically from the nonexperimental population:

(1) For the purposes of this subsection, the term "experimental population" means any population (including any offspring arising therefrom) authorized by the Secretary for release under paragraph (2), but only when, and at such times as, the population is wholly separate geographically from nonexperimental populations of the same species.³⁸

This provision does not require these populations to be totally isolated at all times; in fact, it provides implicit recognition of the biological reality that populations often overlap in certain areas or at certain times. But in those areas and during those times where and when the populations do overlap, a higher level of protection would apply to both groups, presumably because individuals from both groups would be similar in appearance and difficult or impossible to distinguish.³⁹

address the particular needs of that population. Each experimental population is to be treated as a threatened species under the Act which grants the Secretary broad flexibility in promulgating regulations to protect such species. These regulations can even allow the taking of threatened animals. The Committee fully expects that there will be instances where the regulations allow for the incidental take of experimental populations, such as the inadvertent taking of experimental fish species by those fishing for other species in the same body of water. The Committee also expects that, where appropriate, the regulations could allow the directed taking of experimental populations. For example, the release of experimental populations of predators, such as red wolves, could allow for the taking of these animals if depredations occur or if the release of these populations will continue to be frustrated by public opposition.

The Committee believes that involvement of state fish and wildlife agencies in the regulatory process is crucial. The Committee also believes that where experimental populations are released on, or near, private land, landowners must be fully apprised of the release and the regulations under which the population will be managed.

Regulations should be viewed as an agreement among the Federal agencies, the state fish and wildlife agencies and any landowners involved. Changes in the regulations should be made after close consultation with all of the affected parties.

H.R. Rep. No. 567, 97th Cong., 2d Sess., pt. 1 at 33-34 (1982).

38. 16 U.S.C. § 1539(j)(1).

39. The "look alike" provision is based upon this same rationale:

(e) *Similarity of appearance cases.* The Secretary may, by regulation of commerce and taking, and to the extent he deems advisable, treat any species as an endangered species or a threatened species even though it is not listed pursuant to this section if he finds that—

(1) such species so closely resembles in appearance, at the point in question, a species which has been listed pursuant such section that enforcement personnel would have substantial difficulty in attempting to differentiate between the listed and unlisted species;

The Conference Report indicates factors that may be used to identify an experimental population:

Such regulations may identify a population on the basis of location, migration pattern, or any other criteria that would provide notice as to which populations of endangered or threatened species are experimental.⁴⁰

Second, the legislative history of the 1982 Amendments reemphasizes the biological categories that can be listed:

Any species or subspecies of fish, wildlife or plants and separate populations of vertebrate species may be listed. The final decision on whether or not to list the species as endangered or threatened rests with the Secretary. He must use the best available scientific and commercial data regarding the status of the species.⁴¹

Third, the 1982 Amendments clearly indicate that only biological information is to be considered in the listing process. Listing determinations are to be made "*solely* on the basis of the best scientific and commercial data available" ⁴² The House Report stated:

(2) the effect of this substantial difficulty is an additional threat to an endangered or threatened species; and

(3) such treatment of an unlisted species will substantially facilitate enforcement and further the policy of this Act.

16 U.S.C. § 1533(e).

40. H.R. Rep. No. 835, 97th Cong., 2d Sess. at 34 (1982).

An earlier report provides additional information:

The Committee carefully considered how to treat introduced populations that overlap, in whole or part, natural populations of the same species. To protect natural populations and to avoid potentially complicated problems of law enforcement, the definition is limited to those introduced populations that are wholly separate geographically from nonexperimental populations of the same species. Thus, for example, in the case of the introduction of individuals of a listed fish species into a portion of a stream where the same species already occurs, the introduced specimens would not be treated as an "experimental population" separate from the non-introduced specimens. On the other hand, specimens of the same species introduced into a portion of a stream separate from any natural population, such as when a reservoir or other manmade or natural obstacle acts as a barrier to fish passage, would qualify as an experimental population. If an introduced population overlaps with natural populations of the same species during a portion of the year, but is wholly separate at other times, the introduced population is to be treated as an experimental population at such times as it is wholly separate. The Committee intends, however, that such a population be treated as experimental only when the times of geographic separation are reasonably predictable and not when separation occurs as a result of random and unpredictable events.

H.R. Rep. No. 567, 97th Cong., 2d Sess., pt. 1 at 33 (1982).

41. H.R. Rep. No. 567, 97th Cong., 2d Sess., pt. 1 at 10 (1982).

42. Pub. L. 97-304, § 4(b), 96 Stat. 1420 (1982) currently codified at 16 U.S.C. § 1533(b)(1)(A) (1988) (emphasis added; the word "solely" was added by the 1982 Amendments). The use of the "word 'commercial' is not intended, in any way, to authorize the use of economic considerations in the process of listing a species." H.R. Rep. No. 597, 97th Cong., 2d Sess. at 19-20

The addition of the word "solely" is intended to remove from the process of listing or delisting of species any factor not related to the biological status of the species.⁴³

6. *The 1988 Amendments*

The ESA was amended most recently in 1988.⁴⁴ The 1988 Amendments provide little information concerning how the term "species" should be interpreted.⁴⁵ The only relevant legislative history appears to be the general statement that:

Any species or subspecies of fish, wildlife, or plants may be listed. In addition, geographically distinct populations of vertebrate species may be listed.⁴⁶

7 *Relevance of Legislative History and its Implications*

The role of legislative history in construing statutes is a matter of considerable debate among jurists, lawyers and scholars.⁴⁷ With respect to the general goals and purposes of the ESA, the Supreme Court engaged in an extensive legislative history analysis in evaluating Congress's intent when it enacted the ESA.⁴⁸

(1982). The term is used to allow for the use of trade data. *Id.*, see also the Conference Report, H.R. Rep. No. 835, 97th Cong., 2d Sess. at 20 (1982).

43. H.R. Rep. No. 567, 97th Cong., 2d Sess., pt. 1 at 20 (1982). The report also notes that the "Committee strongly believes that *economic considerations have no relevance* to determinations regarding the status of species " *Id.* (emphasis added). See also H.R. Rep. No. 835, 97th Cong., 2d Sess., at 20 (1982). Similarly, the priority system to be used in the listing process must be scientifically based.

The listing agencies should utilize a scientifically based priority system to list and delist species, subspecies and populations based on the degree of threat, and proceed in an efficient and timely manner. Distinctions based on whether the species is a higher or lower life form are not to be considered.

H.R. Rep. No. 835, 97th Cong., 2d Sess., at 21 (1982).

44. Pub. L. 100-478, 102 Stat. 2306 (1988).

45. See H. Rep. No. 928, 100th Cong. 2d Sess. (1988).

46. H. Rep. No. 467, Report of the Committee on Merchant Marine and Fisheries, 100th Cong., 1st Sess., at 4 (1988). There is no explanation or discussion concerning geographic distinctness.

47. A general discussion concerning the use of legislative history is beyond the scope of this article. For a discussion of this topic, see Patricia M. Wald, *The Sizzling Sleeper: The Use of Legislative History in Construing Statutes in the 1988-89 Term of the United States Supreme Court*, 39 AM. U. L. REV. 277 (1990); Patricia M. Wald, *Some Observations on the Use of Legislative History in the 1981 Supreme Court Term*, 68 IOWA L. REV. 195 (1983); Shirley S. Abrahamson and Robert L. Hughes, *Shall We Dance? Steps for Legislators and Judges in Statutory Interpretation*, 75 MINN. L. R. 1045 (1991); and W. David Slawson, *Legislative History and the Need to Bring Statutory Interpretation Under the Rule of Law*, 44 STAN L. REV. 383 (1992).

48. See n. 19, 23 and 24 and related discussion. The legislative history analysis in *TVA v. Hill* was summarized recently as follows:

The Court's decision illustrates the strength of the ESA and of Congress' desire to protect endangered species. Chief Justice Burger found in the legislative history of the ESA many occasions when Congress could have softened the language of the Act but did not.

The language of the statute clearly defines "species" to include a "distinct population" of vertebrate fish or wildlife. However, the statute is not clear concerning the meaning of "distinct population." The legislative history provides some discussion of this concept but provides no specific guidance. Furthermore, the relevance of this limited legislative history is somewhat problematic.⁴⁹ It probably is safe to conclude not only that the

Jared des Rosiers, Note, *The Exemption Process under the Endangered Species Act: How the "God Squad" Works and Why*, 66 NOTRE DAME L. REV. 825, 842 (1991). Another comment was more critical. Geoffrey L. Harrison, Comment, *The Endangered Species Act and Ursine Usurpations: A Grizzly Tale of Two Takings*, 58 CHI. L. REV. 1101 (1991) ("Supreme Court generously appraised Congress's commitment to the preservation of endangered species").

49. In a recent case involving interpreting the intent of Congress in enacting the Arizona-Idaho Conservation Act, Pub. L. 100-696, 102 Stat. 4567 (1988), and resolving ambiguities concerning the interactions between this legislation and the ESA, the court stated:

It is true that in some instances statutes are clear on their face and that no further interpretative assistance is required. In those cases it is proper to look only to the statute's plain language. In other instances, however, the language of the statute is uncertain or ambiguous, and legislative statements, particularly committee reports, can be extremely helpful in understanding what Congress intended—in determining what the statute means.

Mt. Graham Red Squirrel v. Madigan, 954 F.2d 1441, 1453 (9th Cir. 1991).

For an analysis concerning the role of committee reports, statements by sponsors, and floor debates in determining legislative intent, see *Overseas Educ. Assoc. v. F.L.R.A.*, 876 F.2d 960, n. 41 at 966-970 (D.C. Cir. 1989) (this part of the opinion represents only Judge Robinson's view; see concurring opinion indicating a belief that there was no need to examine legislative history).

But most of the legislative history and discussion of the distinct population concept occurred after the definition of "species" was revised to include this phrase in 1978. Such post-enactment legislative history is often viewed with suspicion. For example, see Justice Scalia's concurrence in *Sullivan v. Finkelstein*, 496 U.S. 617, 632 (1990). ("Arguments based on subsequent legislative history . . . should not be taken seriously, not even in a footnote.")

"Obviously, the subsequent approval of a committee report cannot authoritatively define the intent of a previous Congress in passing a statute." *Edwards v. Bowen*, 785 F.2d 1440, 1442 (9th Cir. 1986). Still, such reports may provide "some evidence of Congress's earlier intent." *Id.*

Note that *TVA v. Hill* involved the issue of post-enactment legislative intent. In that case, *TVA* argued that congressional action to continue appropriations for the Tellico dam after the ESA was enacted indicated Congress' intention concerning how the Act should be interpreted in that situation. The Court refused to credit this subsequent legislative history.

See William N. Eskridge, *Overriding Supreme Court Statutory Interpretation Decisions*, 101 YALE L. J. 331, at 401-403 (1991); Patricia M. Wald, *Some Observations on the Use of Legislative History in the 1981 Supreme Court Term*, 68 IOWA L. REV. 195, at 203-205 (1983).

See also *Patsy v. Board of Regents*, 457 U.S. 496 (1982) (legislative history of 1980 Civil Rights of Institutionalized Persons Act considered relevant in interpreting Civil Rights Act of 1871); but see *Regional Rail Reorganization Act Cases*, 419 U.S. 102, 131-32 (1974) ("post-passage remarks of legislators, however explicit, cannot serve to change the legislative intent of Congress expressed before the Act's passage"); *American Federation of Labor v. Donovan*, 757 F.2d 330, 350 (D.C. Cir. 1985) ("postenactment comments generally are not reliable indicators of the meaning of statutory text").

Another recent case discussed the relevance of post-enactment legislative history. *Michigan United Conservation Clubs v. Lujan*, 949 F.2d 202 (6th Cir. 1991). This case involved the issue of whether Congress intended to authorize trapping in National Park areas when it used the language "hunting and fishing." The court was particularly skeptical of affidavits from individual congressmen but noted:

However, while post-enactment developments cannot be accorded the weight of contemporary legislative history, and Congress' failure to disapprove a regulation is not dispositive of

meaning of "distinct population" is ambiguous, but also that Congress has not directly addressed or resolved this precise question.

C. Case Law

1 ESA Cases

Unfortunately, court decisions also provide little detailed guidance concerning the meaning of "species" and "distinct population" under the ESA. Only two cases discuss these issues in any meaningful way

In *Fund for Animals v Florida Game & Fresh Water Fish*, 550 F Supp. 1206 (S.D. Fla. 1982), a federal district court in Florida stressed the importance of interbreeding in determining what constitutes a distinct population or species under the ESA. Plaintiffs in that case attempted to prevent the hunting of white-tail deer in the Florida Everglades. The Key Deer is listed under the ESA but the white-tail deer is not. The court concluded that the white-tail deer was not entitled to protection under the Act because there was no evidence of actual interbreeding between the two herds:

Testimony received from the experts established that the deer in question are Florida white-tail deer, which, although similar to Key Deer, are not on the endangered species list as are the Key Deer. Further, the testimony established that Florida white-tail deer do not, in fact, interbreed with the Key Deer, although it is physically possible for such breeding to occur. It is also physically possible for Key Deer to interbreed with white-tail deer found in other States. However, due to the Key Deer's isolated habitat on two islands on the lower Keys, it is geographically impossible for such breeding to occur in nature, because the herds have no opportunity to mix. Also, no scientific data was (sic) presented regarding whether the two herds had ever mixed in the past.

Based upon the testimony, this Court finds that the Florida white-tail deer are not a "species" of Key Deer and they are not entitled to the protection of the Endangered Species Act. Although the Florida white-tail deer have the potential of interbreeding with the Key Deer, they do not in fact, do so. The definition of "species" in the Endangered Species Act contemplates *the act of interbreeding* to occur, in fact, during maturity, not the *possibility* that the white-tail deer might someday

congressional intent, the district court would be remiss if it ignored evidence that implies congressional intent.

Michigan United Conservation Clubs, 949 F.2d at 210.

biblically *know* the Key Deer.⁵⁰

The court did not discuss the level of interbreeding that would result in a contrary finding. The court referred to the absence of an opportunity for the two deer herds to "mix." One could argue that isolated straying incidents and rare cases of interbreeding would not constitute "mixing," and thus would not require a contrary finding. Conversely, evidence of "mixing" or a significant level of interbreeding would suggest that the two groups should be considered the same "species" under the ESA. While the court indicated that no data were presented concerning whether these herds had mixed in the past, there may be reason to believe that Key Deer evolved from a parent population of white-tail deer that strayed to their isolated island habitat. Once isolated, the Key Deer could evolve independently of the parent population, and thus, distinctive morphological characteristics, such as a smaller size, could develop. A significant level of interbreeding would impede the development of such distinctive characteristics.

In *Roosevelt Campobello Int'l Park v. U.S. E.P.A.*, 684 F.2d 1041 (1st Cir. 1982), the First Circuit discussed the population issue in the context of the ESA consultation process.⁵¹ In that case, the plaintiffs challenged the issuance of a permit authorizing the operation of an oil refinery. The challenge was based, in part, on the claim that the oil refinery would jeopardize the continued existence of a population of bald eagles. There was controversy whether the relevant bald eagle population was limited to eagles in the northeastern United States or included such birds in New Brunswick, Nova Scotia, and Cape Breton. The court observed:

Even if testimony that Canadian eagles migrated to the United States or interbred with eagles nesting in the United States could make consideration of the Canadian eagle population relevant, the ALJ refused to base his conclusion of no jeopardy on any such factual basis.⁵²

These two cases do not clearly explain what the phrase "distinct population means." Nonetheless, both cases stress the importance of interbreeding in making distinct population determinations.

2. *Other Cases*

Other cases not directly related to the ESA are of questionable

50. *Fund for Animals v. Florida Game & Fresh Water Fish*, 550 F. Supp. 1206, 1208-1209 (S.D. Fla. 1982) (emphasis in original).

51. *Roosevelt Campobello Int'l Park v. U.S. E.P.A.*, 684 F.2d 1041 (1st Cir. 1982).

52. *Id.* at 1050 n. 5. The court also emphasized the Secretary's exclusive authority not only to list a species under the ESA, but also to specify the range where a species is endangered or threatened.

relevance but may provide some insight concerning how the term "distinct" should be interpreted. "Distinctness" and "distinctiveness" have been interpreted in the context of other laws. Various cases involving copyright and trademark law emphasize the "separate" or "apart from" meaning of "distinctiveness."⁵³

But "distinct" may involve a second meaning that includes the concepts of "uniqueness" and "importance." At least one court has interpreted the term "distinctness" to include these concepts.⁵⁴ *Yoder Brothers v. California-Florida Plant Corp.*, 537 F.2d 1347 (5th Cir. 1976), concerned the interpretation of the term in the context of the Plant Patent Act, a law that regulates the issuance of patents for hybrid plants. The Plant Patent Act identifies varieties and strains of plants that are distinguishable from more generic or common plant species; similar factors or considerations might be relevant in determining a "distinct population" under the ESA.

The characteristics that may distinguish a new variety would include, among others, those of habit; immunity from disease; or soil conditions; color of flower, leaf, fruit or stems; flavor; productivity, including ever-bearing qualities in the case of fruits; storage qualities; perfume; form; and ease of asexual reproduction. Within any one of the above or other characteristics the differences which would suffice to make a distinct variety, will necessarily be differences of degree.⁵⁵

3. *Relevance of Case Law and its Implications*

Case law does not define "species" or "distinct population," as these terms are used in the ESA. The First Circuit considered a related question in a footnote.⁵⁶ A federal district court in Florida evaluated species determinations for deer but did not provide explicit standards for making these determinations. Nonetheless, some general guidance is provided by these two cases. The courts have discussed interbreeding and isolation as factors that may be relevant in determining what constitute a "species" or "distinct population." In other cases that are further afield, courts have interpreted "distinct" and similar terms, but their guidance is even more general and diffuse. Case law, like the legislative history of the ESA gives little guidance in determining "species" or "distinct populations" that may be protected by the Act.

53. See *Miller Brewing v. Heilman*, 427 F. Supp. 1192, 1200 (W.D. Wis. 1977); and *Dunhill v. Kasser*, 350 F. Supp. 1341, 1358 (E.D. Penn. 1972).

54. *Yoder Brothers v. California-Florida Plant Corp.*, 537 F.2d 1347 (5th Cir. 1976).

55. S. Rep. 315, 71st Cong., 2d Sess. (1930) (cited in *Yoder Brothers v. California-Florida Plant Corp.*, 537 F.2d 1347, 1378 (5th Cir. 1976)).

56. *Roosevelt Campobello Int'l Park v. U.S. E.P.A.*, 684 F.2d 1041, 1050 n. 5 (1st Cir. 1982).

PART II

Recent actions by Federal agencies provide more specific guidance concerning the meaning of the phrase "distinct population." The Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) share responsibility under the ESA.⁵⁷ To date, FWS has used distinct populations as the basis for ESA listings more frequently than NMFS.⁵⁸ However, FWS' listing determinations reflect a case-by-case approach to the population issue. For example, FWS listed the silver rice rat while acknowledging the continuation of "varying interpretations of the taxonomic status of this rodent."⁵⁹ Similarly, the marbled murrelet in California, Washington, and Oregon recently was listed as a threatened species although FWS expressed its intention to reexamine the basis of recognizing this population of murrelets as a "species" under the Act.⁶⁰ These listings and other FWS determinations provide some information concerning the standards used to make population determinations for terrestrial creatures.

Of particular interest, however, are recent statements of policy, decisions, and other administrative actions taken by NMFS with respect to Pacific salmon. NMFS attempted to address systematically issues concerning the definition of "species" under the ESA and to develop criteria for making certain population decisions. The agency published interim and final policy statements on the definition and its application to Pacific salmon stocks.⁶¹ In addition, proposed and final listing determinations illustrate how the policy is implemented.⁶²

57. See n. 4.

58. See 57 Fed. Reg. 45,328 (1992) (marbled murrelet); 56 Fed. Reg. 19,809 (1991) (silver rice rat); 55 Fed. Reg. 12,191 (1990) (desert tortoise); 53 Fed. Reg. 38,453 (1988) (Nile crocodile); 52 Fed. Reg. 42,068 (1987) (Roseate tern); 52 Fed. Reg. 25,380 (gopher tortoise); and 52 Fed. Reg. 22,430 (1987) (flattened musk turtle).

59. 56 Fed. Reg. 19,811 (1991).

60. The final listing appears at 57 Fed. Reg. 45,328 (1992) with discussion of the population issue at 45330. See 56 Fed. Reg. 28,362 (proposed rule), 57 Fed. Reg. 3804 (1992) (notice to reopen the comment period to solicit additional comments on the status of the species), and 57 Fed. Reg. 33,478 (1992) (notice of 6-month extension of the final determination based on substantial disagreement concerning the sufficiency or accuracy of available data, especially disagreement concerning whether marbled murrelets in a three-state area constituted a "distinct population segment" under the Act); see also *Marbled Murrelet v. Lujan*, No. C91-522R, memorandum slip op. (W.D. Wash. Sept. 17, 1992).

61. 56 Fed. Reg. 10,542 (1991) (interim policy); and 56 Fed. Reg. 58,612 (1991) (final policy).

62. 56 Fed. Reg. 14,055 (1991) (proposed rule to list Snake River sockeye salmon as an endangered species); 56 Fed. Reg. 29,542 (1991) (proposed rule to list Snake River spring and summer chinook salmon as a threatened species); 56 Fed. Reg. 29,547 (1991) (proposed rule to list Snake River fall chinook salmon as a threatened species); 56 Fed. Reg. 29,553 (1991) (determination that a proposal to list lower Columbia River coho salmon was not warranted); 56 Fed. Reg. 58,619 (1991) (final rule to list sockeye as an endangered species); 57 Fed. Reg. 14,653 (1992) (final rule to list spring and summer chinook salmon as a threatened species and to list Snake River Fall chinook salmon as a threatened species).

A. *Columbia River Salmon*1 *Petitions to List Salmon Stocks*

Under the ESA, NMFS is responsible for salmon.⁶³ In 1990, NMFS received petitions to list five stocks⁶⁴ of salmon in the Columbia River system under the ESA.⁶⁵ The five stocks are the Snake River sockeye salmon, the lower Columbia River wild coho salmon, and the spring, summer and fall runs of chinook salmon, in the Snake River.⁶⁶

In responding to these petitions, fundamental questions concerning the definition of "species" under the ESA needed to be resolved since NMFS was required to evaluate whether each petitioned stock would qualify as a "distinct population," and thus constitute a "species" under the Act. The primary issue was whether the petitioned stocks represented populations that were distinct from salmon populations elsewhere. Sockeye, coho, and chinook salmon exist in other rivers and are abundant in some areas. However, it is recognized that salmon generally return to spawn in their natal streams, although natural straying does occur and total isolation from other populations of the same biological species probably is rare.⁶⁷

More specific issues included whether the anadromous Snake River sockeye stock is distinct from the more plentiful fresh-water kokanee strain

63. Memorandum of Understanding Regarding Jurisdictional Responsibilities and Listing Procedures under the Endangered Species Act of 1973 (August 28, 1974). The Secretary of Commerce has delegated most ESA responsibilities to the Assistant Administrator for Fisheries. See NOAA Circular 78-21 (April 4, 1978).

64. The petitions and other documents refer to these groups of salmon in a variety of ways, such as "stocks," "strains," "runs," or "races." This article uses these terms interchangeably to refer to any subgroup of salmon species without denoting whether the subgroup constitutes a "distinct population" under the ESA.

65. In 1990, NMFS initiated a review of the status of sockeye salmon in the Snake River. 55 Fed. Reg. 13,181 (1990). On April 2, 1990, the Shoshone-Bannock Tribes of the Fort Hall Indian Reservations petitioned to list Snake River sockeye salmon as endangered under the ESA. NMFS published a notice on June 5, 1990, announcing the petition presented substantial information indicating that the listing may be warranted and requesting information from the public. 55 Fed. Reg. 22,942 (1990). On June 7, 1990, NMFS received petitions to list Snake River spring chinook salmon, Snake River summer chinook salmon, Snake River fall chinook salmon, and lower Columbia River coho salmon under the ESA. Petitioners included Oregon Trout, Oregon Natural Resources Council, Northwest Environmental Defense Center, American Rivers, and Idaho and Oregon Chapters of American Fisheries Society. NMFS published a notice on September 11, 1990, announcing the petitions presented substantial information indicating that the listings may be warranted and requesting information from the public. 55 Fed. Reg. 37,342 (1990).

66. The scientific name for sockeye salmon is *Oncorhynchus nerka*, for coho it is *Oncorhynchus kisutch*, and for chinook it is *Oncorhynchus tshawytscha*.

67. Robin Waples, *Definition of a "Species" under the Endangered Species Act: Application to Pacific Salmon* (NMFS Technical Memorandum 1991) at 5. See also Robin Waples, *Pacific Salmon and the Definition of "Species" under the Endangered Species Act*, 53(3) MARINE FISHERIES REVIEW 11 (1991).

of that species, whether the various runs of Snake River chinook are distinct variants, and whether lower Columbia River wild coho stock is separate from the hatchery strain of coho in the lower river.

2. NMFS Policy Statement and Determinations Concerning Salmon

Attempting to deal with these issues, NMFS published an interim policy concerning species determinations with respect to Pacific salmon stocks.⁶⁸ After receiving public comments, NMFS published a final policy.⁶⁹ The policy was summarized as follows:

A salmon stock will be considered a distinct population, and hence a 'species' under the ESA, if it represents an evolutionarily significant unit (ESU) of the biological species. The stock must satisfy two criteria to be considered an ESU: (1) It must be substantially reproductively isolated from other conspecific population units; and (2) it must represent an important component in the evolutionary legacy of the species. Only Pacific salmon stocks that meet these criteria will be considered by NMFS for listing under the ESA.⁷⁰

The first criterion, substantial reproductive isolation, involves a somewhat quantitative evaluation. Reproductive "isolation does not have to be absolute, but it must be strong enough to permit evolutionarily important differences to accrue in different population units."⁷¹ While difficult to measure directly, a variety of indirect evidence may be relevant in determining the extent of reproductive isolation, including records of the movement of tagged fish, knowledge concerning recolonization rates, measurements of genetic differences, and evaluations of the efficacy of natural barriers.

The second criterion, importance in the evolutionary legacy of the species, involves a more subjective determination although the determination must be based on objective evidence and scientific judgment; the question is whether the population is of substantial ecological or genetic importance to the species as a whole. Relevant issues in this determination include whether the population is genetically distinct from other populations, whether the population occupies distinct or unusual habitat, whether the population shows evidence of distinctive or specific adaptations to its environment, and more generally, whether the extinction of the population

68. 56 Fed. Reg. 10,542 (1991); see also Robin Waples, *Definition of a "Species" under the Endangered Species Act: Application to Pacific Salmon* (NMFS Technical Memorandum 1991).

69. 56 Fed. Reg. 58,612 (1991); see also Robin Waples, *Pacific Salmon and the Definition of "Species" under the Endangered Species Act*, 53(3) MARINE FISHERIES REVIEW 11 (1991).

70. 56 Fed. Reg. 58,618 (1991); see also 56 Fed. Reg. 10,542 (1991).

71. 56 Fed. Reg. 10,543 (1991).

would represent a significant loss to the ecological and genetic diversity of the species.

These criteria provide a framework for making determinations concerning whether a stock of salmon constitutes a "distinct population" under the ESA. The criteria do not provide a mechanical formula with automatic answers to population questions; rather, they narrow the issues and focus the discussion on two key elements. In most cases, these elements suggest further unresolved questions. As summarized in the supporting document:

The framework suggested here provides a focal point for accomplishing the major goal of the Act—to conserve genetic diversity of species and the ecosystems they inhabit. At the same time, it allows discretion in the listing of populations by requiring that they represent units of real evolutionary significance to the species.⁷²

Based on this policy, NMFS determined that Snake River sockeye salmon is a distinct population and issued a final rule to list this species as endangered.⁷³ In contrast, NMFS determined that there was not sufficient data to identify any wild population of lower Columbia River coho salmon as reproductively isolated or genetically distinct from hatchery and other coho populations. Consequently, NMFS issued a notice of determination concluding that a proposal to list lower Columbia River coho was not warranted.⁷⁴ With respect to the chinook petitions, NMFS issued a determination that the spring and summer runs of chinook salmon in the Snake River should not be considered two distinct populations but, as a group, the combined population should be considered distinct from the fall run and other chinook populations, and NMFS issued a rule to list Snake River spring/summer chinook salmon as a threatened species.⁷⁵ In another determination, NMFS concluded that the fall run of chinook salmon in the Snake River constituted a distinct population and published a rule to list this species as threatened.⁷⁶

72. Robin Waples, *Definition of a "Species" under the Endangered Species Act: Application to Pacific Salmon* (NMFS Technical Memorandum 1991) at vii.

73. 56 Fed. Reg. 58,619 (1991); the proposed rule is at 56 Fed. Reg. 14,055 (1991).

74. 56 Fed. Reg. 29,553 (1991).

75. 57 Fed. Reg. 14,653 (1992); the proposed rule is at 56 Fed. Reg. 28,542 (1991). See also the response to the comment: *Groups of Populations* at 56 Fed. Reg. 58,617-18 (1991).

76. 57 Fed. Reg. 14,653 (1992); the proposed rule is at 56 Fed. Reg. 29,547 (1991).

B. Legal Basis for the Policy Statement and Determinations

1. Deference and the Standard of Review

Any legal evaluation of an agency action must begin with a recognition that, generally, an agency has considerable discretion in interpreting the statutes it administers. An agency's construction of the laws it administers is accorded considerable weight.⁷⁷ Similarly, where the legislative delegation on a particular question is implicit, "a court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency."⁷⁸

In particular, an agency's expertise concerning quasi-technical matters may be entitled to considerable deference.⁷⁹ For example, in a case involving sea turtle conservation regulations, the Fifth Circuit noted that deference to the agency was greatest when the court was reviewing technical matters within the agency's area of expertise; the court discussed NMFS' choice of scientific data and statistical methodology.⁸⁰ Similarly,

77. *Chevron U.S.A., Inc. v. Natural Resources Defense Council*, 467 U.S. 837, 844 (1984). See also *Motor Vehicles Mfrs. Ass'n. v. State Farm Mutual Auto. Ins. Co.*, 463 U.S. 29, 43 (1983) ("[T]he court is not empowered to substitute its judgment for that of the agency."); *I.N.S. v. Cardoza-Fonseca*, 480 U.S. 421, 448 (1987); and *Am. Petroleum Inst. v. U.S. E.P.A.*, 858 F.2d 261, 264 (5th Cir. 1988).

It is beyond the scope of this article to discuss the *Chevron* doctrine in any detail. For more discussion, see Robert A. Anthony, *Which Interpretations Should Bind Citizens and Courts?* 7 YALE J. ON REG. 1 (1990); Clark Byse, *Judicial Review of Administrative Interpretation of Statutes: An Analysis of Chevron's Step Two*, 2 ADMIN. L.J. 255 (1988); BENJAMIN W. MINTZ, CHM., ET AL., A GUIDE TO FEDERAL AGENCY RULEMAKING (2d ed. 1991) at 335-342; William V. Luneburg, *Judicial Review of Agency Statutory Interpretation: An Introduction*, 2 ADMIN. L.J. 243 (1988); Antonin Scalia, *Judicial Deference to Administrative Interpretations of Law*, 1989 DUKE L.J. 511; Peter H. Schuck and Donald Elliot, *To the Chevron Station: An Empirical Study of Federal Administrative Law*, 1990 DUKE L.J. 984; Cass R. Sunstein, *Law and Administration After Chevron*, 90 COLUM. L. REV. 2071 (1990); Patricia Wald et al., *The Contribution of the D.C. Circuit to Administrative Law*, 40 ADMIN. L.R. 507 (1988) (transcript of panel discussion at fall meeting of ABA Administrative Law Section).

78. *Chevron*, 467 U.S. at 844. See also *Nat'l Wildlife Fed'n v. Hodel*, 839 F.2d 694, 741 (clear evidence of congressional intent to preclude agency's interpretation is a "necessary prerequisite here to rebut the inference that Congress meant to delegate to the Secretary the authority to interpret the general and ambiguous terms").

79. *Baltimore Gas and Elec. v. Natural Resources Defense Council*, 462 U.S. 87, 103 (1983) (a reviewing court "must generally be at its most deferential" when reviewing an agency's scientific determinations in an area within the agency's technical expertise).

80. "Although we believe appellants' challenge is not totally without merit, we are mindful that under the arbitrary-and-capricious standard, our deference to the agency is greatest when reviewing technical matters within its area of expertise, particularly in its choice of scientific data and statistical methodology. In reviewing such technical choices, '[w]e must look at the decision not as the chemist, biologist or statistician that we are qualified neither by training nor experience to be, but as a reviewing court exercising our narrowly defined duty of holding agencies to certain minimal standards of rationality.' Accordingly, where, as here, the agency presents scientifically respectable conclusions which appellants are able to dispute with rival evidence of presumably equal dignity, we will not displace the administrative choice." *Louisiana v. Verity*, 853 F.2d 322, 329 (5th Cir. 1988) (emphasis added; footnotes and citations omitted).

the agency's exclusive authority to list a species and to make associated biological determinations concerning the species range was recognized by the First Circuit.⁸¹

Presumably, considerable deference also would be appropriate in reviewing an agency's scientific determination concerning what constitutes a distinct population. Of course, the conclusions must be scientifically acceptable with some support in the record.⁸²

Judicial review of the agency decision concerning whether a salmon stock constitutes a "distinct population" would be governed by the Administrative Procedure Act, 5 U.S.C. § 706 (APA). Under section 706, the reviewing court must satisfy itself that agency decisions are not "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."⁸³ The relevant inquiry is whether the agency "considered the relevant factors and articulated a rational connection between the facts found and the choice made."⁸⁴

2. *The Rational Basis for the NMFS Policy Statement*

From a common sense perspective, there is a rational basis for the NMFS policy statement concerning population determinations. The two-part test specifies the relevant factors to be used in determining the existence of a distinct population. The first part of this test focuses on the degree of reproductive isolation. A common dictionary definition of "distinct" is "separate" or "apart from." In addition, as a biological term, "population" includes the idea of reproductive isolation or separation.

The second part of the test focuses on the importance of the population in the evolutionary legacy of the species. "Distinct" in this sense refers to "uniqueness" or "importance" rather than "separateness." This interpretation appears justifiable, especially given the context.

The NMFS policy statement is consistent with the stated purposes and policy of the Act. First, the policy is designed to provide a means "for accomplishing the major goal of the Act—to conserve genetic diversity of

81. "Certainly the initial determination of whether a species is endangered is within the Secretary's exclusive authority, *TVA v. Hill*, 437 U.S. at 171-72, 98 S.Ct. at 2290-2291. We see no reason why the Secretary should not have similar authority to ascertain the appropriate range in which the species is endangered." *Roosevelt Campobello Int'l Park v. U.S. E.P.A.*, 684 F.2d 1041, 1050, n.5 (1st Cir. 1982).

82. *Northern Spotted Owl v. Hodel*, 716 F. Supp. 479, 482 (W.D. Wash. 1988).

83. 5 U.S.C. § 706(2)(A) (1988); *Friends of Endangered Species v. Jantzen*, 760 F.2d 976, 981-82 (9th Cir. 1985).

84. *Friends of Endangered Species*, 760 F.2d at 982 (quoting *Baltimore Gas & Elec. Co. v. Natural Resources Defense Council*, 462 U.S. 87, 105 (1983)); see also *Village of Kaktovik v. Corps of Engineers*, 12 Env't Rep. Cas. 1740 (D. Alaska 1978).

species and the ecosystems they inhabit."⁸⁵ In addition, the policy "allows discretion in the listing of populations by requiring that they represent units of real evolutionary significance to the species."⁸⁶ This approach to population determinations resolves the apparent inconsistency concerning the amount of discretion the agency has in making population and listing determinations and seems consistent with indications of legislative intent.

Some legislative history suggests that the agency has broad discretion in making population and listing determinations, and states that agencies should "use the ability to list populations sparingly and only when the biological evidence indicates that such action is warranted."⁸⁷ But there are subsequent indications that this type of decision may be nondiscretionary.⁸⁸

While the ESA specifies the five factors to be considered in the listing process, there is some discretion in analyzing data and information relevant to each factor.⁸⁹ Thus, one could claim that agencies have latitude in making determinations concerning whether a species qualifies as endangered or threatened.⁹⁰

Alternatively, one could argue that the ESA does not provide much discretion with respect to the listing decision itself, but that some discretion may exist concerning the prerequisite determination concerning what constitutes a listable unit or "species" under the ESA. The amount of discretion may be broadest in cases of population determinations.

Finally, one could argue that there is little discretion if, based upon the best scientific data available, the agency believes that a group of organisms constitutes a distinct population and that group is endangered or threatened; in that case, the agency must list this species under the ESA. However, many cases involve scientific uncertainty or disagreement concerning what constitutes a population. While members of different species do not generally interbreed and produce fertile offspring, the standards for differentiating between populations are less clear. While

85. Robin Waples, *Definition of a "Species" under the Endangered Species Act: Application to Pacific Salmon* (NMFS Technical Memorandum 1991) at vii.

86. *Id.*

87. S. Rep. No. 151, 96th Cong., 1st Sess. (1979), reprinted in Cong. Research Service, 97th Cong., 2d Sess., *A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973* (Comm. Print 1982) at 1397.

88. For example, the legislative history of the 1982 Amendments indicates that the Secretary has "mandatory, nondiscretionary duties" under the listing process. H.R. Rep. No. 835, 97th Cong., 2d Sess. (1982) at 20. Similarly, in *Pacific Legal Foundation v. Andrus*, 657 F.2d 829 (6th Cir. 1981), the court concluded that an environmental impact statement was not required in order to list certain mussels as endangered under the ESA, in large part, because of the absence of discretion in the listing process.

89. 16 U.S.C. § 1533(a)(1); see also 16 U.S.C. § 1533 (b)(1).

90. 16 U.S.C. § 1532(6), (20).

there is restricted gene flow between populations, gene flow may occur at many levels, making it difficult to identify what is a population and what is not.⁹¹

More importantly, the definition of "species" does not merely refer to the term "population," but rather, it refers to "any distinct population segment of any species of vertebrate or wildlife which interbreeds when mature,"⁹² and there may be considerable latitude in interpreting this phrase.

A determination concerning a whether a group of fish or wildlife constitutes a "distinct population" is an essential part of the listing process and, as such, the decision should be based "solely on the basis of the best scientific and commercial data available."⁹³ The NMFS policy statement stresses the need to make population determinations on this basis and indicates the agency will rely on its biological expertise and the expertise of the scientific community.⁹⁴

Furthermore, the NMFS policy appears consistent with congressional intent. In some cases, there may be considerable scientific latitude concerning what constitutes a distinct population, but the degree of latitude must be analyzed in the context of the stated purposes and policy of the ESA and in terms consistent with legislative intent.⁹⁵ While it can be argued that there may be some flexibility in interpreting "distinct population," these interpretations should reflect the purposes, policies, and intentions of Congress. The NMFS policy appears consistent with the broad values and goals enunciated by Congress.

91. See n. 11 and 12.

92. 16 U.S.C. § 1532(16) (1988).

93. 16 U.S.C. § 1533(b)(1)(A). See also n. 42-43 and related discussion.

94. "NMFS will use the best scientific and commercial data available and will rely on the biological expertise of the agency and the scientific community in making 'species' determinations under the ESA. A 'species' determination must be supported by scientific evidence."
56 Fed. Reg. 58,618 (1991).

95. "The stated purposes of the ESA are 'to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species.' (ESA section 2(b)). A review of the legislative history indicates that a major motivating factor behind the ESA was the desire to preserve genetic variability, both between and within species. For example, the House of Representatives described the rationale for H.R. 37, a forerunner to the ESA, in the following terms (H.R. Rep. No. 412, 93d Cong., 1973):

From the narrowest possible point of view, it is in the best interests of mankind to minimize the losses of genetic variations. The reason is simple: They are keys to puzzles which we cannot yet solve, and may provide the answers to the questions which we have not yet learned to ask."

56 Fed. Reg. 10,543 (1991).

See also n. 20-24 and the associated discussion. The relevant legislative history is *reprinted in* Cong. Research Service, 97th Cong., 2d Sess., A LEGISLATIVE HISTORY OF THE ENDANGERED SPECIES ACT OF 1973 AT 144 (Comm. Print 1982).

In addition, the NMFS policy appears consistent with the Congressional concern regarding the much more narrowly defined problem of the city park squirrel population.⁹⁶ Although such a population may be reproductively isolated, it is doubtful that such a population would represent an important component of the evolutionary legacy of the species; consequently it would not be considered a "distinct population" and would not be entitled to listing under the ESA.

CONCLUSION

The ESA established a broad framework for identifying species in danger of or threatened with extinction. Legislative history, while useful in explaining the purposes, policy and broad goals of the ESA, does not provide definitive guidance concerning how the terms "species" and especially, "distinct population" should be interpreted. Congress has not directly addressed or resolved these precise issues. While some legislative history exists, there is far from absolute resolution concerning the meaning Congress intended these terms to have.

Likewise, case law is sparse. The few relevant decisions, while including some discussion of the importance of interbreeding, do not provide answers to specific questions concerning the meaning of these terms. Given this situation, an agency should have considerable latitude in interpreting the statute and resolving detailed questions where there are gaps in the statute.

To fill these gaps, NMFS has published a final policy to address the issue of how the definition of "species" should be applied in evaluating Pacific salmon stocks for listing under the ESA. While NMFS has attempted to give these terms content, the limitations of a policy developed specifically for salmon are obvious. Unlike many species, most salmon species conceivably could be divided into hundreds or even thousands of population units. Furthermore, the population dynamics, special habitat requirements, and unique life cycles of anadromous fish make salmon somewhat unique. The factors considered in making population determinations concerning other species, including other marine species, especially where much less is known concerning population structure and where the number of population units may be far fewer, may be considerably different.

Nonetheless, given these limitations, the NMFS policy provides a particularly interesting background for discussing special problems and questions concerning how the ESA should be interpreted. The legal analysis provided in this article, the policy paper issued by NMFS, and the

96. See n. 30-34.

precedent established by NMFS in making species determinations for various stocks of salmon provide more specific guidance concerning the meaning of "species" under the ESA.

The exercise of agency discretion is inherent in making determinations concerning whether or not a group of organisms qualifies as a "distinct population," and thus, a "species" under the ESA, however, economic or political considerations should not be involved. Rather these determinations should be based on biological and scientific judgment. At least with respect to Pacific salmon, policymakers should base determinations concerning whether a stock is a "distinct population," first, on the degree of the stock's reproductive isolation, and second, the importance of the stock to the ecological and genetic diversity of the species as a whole.

As with other ESA issues, the issue of what constitutes a "species" or "distinct population" is controversial. Ambiguities concerning the meaning of these terms are not resolved by an analysis of the statute, legislative history or case law, and may be subject to future litigation. This issue, as well as other issues concerning the protection of salmon in the Columbia River system, will join the long list controversies surrounding this Act.